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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,694	09/16/2003	Preston Whitcomb	05689-017001	4702
26161	7590	06/27/2006	EXAMINER	
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			ADAMS, GREGORY W	
			ART UNIT	PAPER NUMBER
			3652	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/664,694

Applicant(s)

WHITCOMB, PRESTON

Examiner

Gregory W. Adams

Art Unit

3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 20-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 20-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 7, 2006 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11 & 36 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an active area comprising a pneumatic sensor, does not reasonably provide enablement for sensing distance between two objects via a pneumatic sensor. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. Pneumatic sensors sense presence and/or absence through blockage, e.g. placement of the object over the inlet will effectively close off the pneumatic sensor triggering an object present signal. Assuming Applicant intends a zero (0) distance to be measured via blockage, there is disagreement with claim 1 which defines the measurement to be "between" two objects, e.g. the space

between two objects not including the space occupied by either said object. Thus, its unclear from Applicant's specification how a pneumatic sensor can measure a distance "between" two objects if there is no blockage, e.g. the object is not yet at the sensor.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-2, 7-10, 12, 14, 21-25, 27-35, 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Fossey et al. (US 5,988,971).

With respect to claims 1, 7, 12, 14, 29, 30, 32, Fossey et al. disclose a system for handling substrates held in a carrier comprising an articulated robotic arm 23, processor 16, 19, blade 21 defining a critical plane, active area 62-64, mapping sensor 61 and a first end passive gripper 31 and a second end active gripper 32 comprising a servo gripper 66, 67 coupled to an electric motor 69. With respect to claim 7, the claimed steps relate to a method of making the making an active rather than the apparatus. Examiner advises applicant that mixing statutory classes of invention may lead to indefiniteness during claim interpretation, thus Examiner seeks clarification on the type of claim Applicant has created. See MPEP 2173.05(p). Further, the method steps in claim 7 resemble product-by-process limitations and have been treated as such. That is, the limitations relating to how a metalization process forms an active area would not be expected to impart distinctive characteristics to an apparatus and, moreover, when

Art Unit: 3652

there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct. See *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983); MPEP 716.01 (establishing that a statement or argument by the attorney is not factual evidence). Thus, claim 7 can be regarded as anticipated by the applied prior art, and the burden of proof is shifted to Applicant, not the Examiner, to show that the process of making renders the claims patentably distinct. See *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

With respect to claims 2, 31, 37 Fossey et al. disclose detecting a mean vertical location.

With respect to claims 8, 33, Fossey et al. disclose an active area configured to measure mean vertical location.

With respect to claims 9-10, 34-35, Fossey et al. disclose a measurement transducer and capacitance probe.

With respect to claims 21-23, Fossey et al. disclose a method for handling substrates held in a carrier comprising:

moving an end effector 21 defining a critical plane across an edge of the substrates;

measuring coordinate information, i.e. vertical location, of the substrates in a carrier with a mapping sensor 21;

storing coordinate information, e.g. processor 16, 19 (C7/L55-C8/L15);

sequentially indexing a robotic arm according to stored information;

Art Unit: 3652

measuring a distance between a substrate and critical plane (C6/L20-C7/L30);
and

engaging a substrate with a robot arm 23.

With respect to claim 24, referring to location data "to within 135 microns" it is well known within the art of substrate handling that high tolerances are preferred.

With respect to claim 25, referring to substrate location "to within 100 microns" it is well known within the art of substrate handling that high tolerances are preferred.

With respect to claim 27, Fossey et al. disclose a blade 21 and an active area 62-64. With respect to claims 27 and 28, Applicant is respectfully reminded that to be entitled to patentable weight in method claims the structural limitations recited therein must affect the method in a manipulative sense, and not to amount to the mere claiming of a use of a particular structure. See *Ex parte Pfeiffer*, 135 USPQ 31 (1961). In this case the structural limitations of a blade having a first end and a second end and active area do not impact the method as required, thus amounting to the mere claiming of a use of a particular structure. For example, claim 27 should be rewritten as --...providing a robotic arm including an end effector comprising a blade having a first end and a second end, the blade having an active area--.

With respect to claim 28, Fossey et al. disclose a passive gripper and an active gripper.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3652

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3-4 & 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fossey et al. (US 5,988,971) in view of Shamlou et al. (US 6,024,393).

With respect to claims 3-4 & 39-40, Fossey does not disclose a silicon wafer blade or a ceramic blade. Shamlou et al. '393 disclose a silicon wafer blade 100 (C9/L32-34) and ceramic blade. Shamlou discloses that silicon wafer blades aren't prone to voids are low-friction surfaces (C9/L25-40) and that ceramic blades provide structural strength under the high-head operating conditions of the wafer processing reactors despite thin cross-sections (C2/L42-45). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the blade of Fossey et al. to include a silicon wafer or ceramic, as per the teachings of Shamlou et al., to reduce voids and friction or provide structural strength in high heat.

3. Claims 5-6 & 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fossey et al. (US 5,988,971)

With respect to claims 5-6 & 41-42, Fossey an end effector blade 21 except for limiting the thickness to less than 750 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to limit the blade thickness to less than 750 microns, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Art Unit: 3652

4. Claims 11, 13, 15-16 & 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fossey et al. (US 5,988,971) in view of Govzman et al. (US 6,454,332).

With respect to claims 11 & 36, Fossey et al. does not disclose an optical sensor. Govzman et al. disclose a pneumatic sensor to decrease particle generation and decrease misalignment. C1/L10-20. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the active are of Fossey et al. to include a pneumatic sensor, as per the teachings of Govzman et al., to decrease particle generation and increase alignment accuracy.

With respect to claims 13, 15-16, Fossey et al. does not disclose a pneumatic active gripper or providing feedback to a processor for determining positive gripper engagement. Govzman et al. disclose positive gripper engagement sensor, e.g. pressure transducer via a vacuum to sense gripper position and engagement to increase yield and decrease vibrations. C1/L10-25; C3/L5-55. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Fossey et al. to include a pneumatic active gripper and feedback, as per the teachings of Govzman et al., to increase alignment prior to placement in a vacuum chamber for purposes of increasing yield and reduce particle causing vibrations.

5. Claims 17-18, 20 & 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fossey et al. (US 5,988,971) in view of Cheng (US 6,164,894).

With respect to claims 17 & 26, Fossey et al. does not disclose a substrate prealigner. Cheng '894 discloses a prealigner for use in a system for handling substrates held in a carrier including a substrate prealigner 16 having a prealigner chuck 86. Cheng '894 discloses a prealigner and prealigner chuck to locate the center of a wafer within a fast, precise automated wafer handling system to increase wafer yields. C1/L14-36. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to prealign a substrate within the systems of Fossey et al., as taught by Cheng, to locate the center of a wafer within a fast, precise automated wafer handling system to increase wafer yields.

With respect to claim 18, Fossey et al. does not disclose a prealigner chuck having embattlements. Cheng '894 discloses a prealigner chuck 84 having embattlements 84, 88. Cheng '894 discloses a prealigner chuck and embattlements to support a substrate within a fast, precise automated wafer handling system to increase wafer yields. C1/L14-36. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to prealign a substrate within the systems of Fossey et al., as taught by Cheng, to locate the center of a wafer within a fast, precise automated wafer handling system to increase wafer yields.

With respect to claim 20, Fossey et al. does not disclose a prealigner chuck with holes. Cheng '894 discloses a prealigner chuck 84 having plurality of holes (C7/L32-34) to retain a substrate to a chuck 86. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to had a prealigner chuck

Art Unit: 3652

with holes to a system of Fossey et al., as taught by Cheng, to retain a substrate to a chuck.

6. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fossey et al. (US 5,988,971) in view of Hsiao (US 6,040,585). Fossey et al. do not disclose a laser transducer. Hsiao '585 discloses a laser transducer 52 to sense blade/substrate orientation which simplifies wafer handling and reduces moving parts which consequently reduces particle generation. C1/L11-30; C5/L24-25. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize laser sensors for the end effector of Fossey et al., as taught by Hsiao, to simplify a system that handles substrates and reduce particle generation.

Response to Arguments

Applicant's arguments/amendments filed April 7, 2006 with respect to claims 1, 21, 23 & 29 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Fossey et al. Applicant's arguments filed April 7, 2006 with respect to the Cheng reference have been fully considered but they are not persuasive.

In response to applicant's argument that the Cheng reference is not sized and configured to reduce inertia, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In this case Cheng's inclusion of holes will certainly perform the function of reducing inertia.

Art Unit: 3652

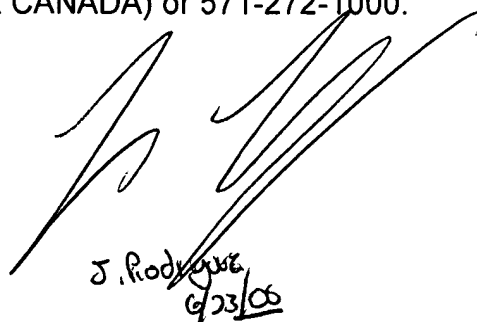
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory W. Adams whose telephone number is (571) 272-8101. The examiner can normally be reached on M-TH, 8:00-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GWA



J. Rodriguez
6/23/06